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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/155,921	05/13/1999	GUNTER DONN	514413-3669	9327

7590 06/02/2004

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EXAMINER

FOX, DAVID T

ART UNIT	PAPER NUMBER
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1638

DATE MAILED: 06/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/155,921	DONN ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	David T. Fox	1638	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 20 March 2003 and 06 February 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 9 and 11-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 9 and 11-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

The Request for a CPA of 06 February 2004 in the instant application, which has an effective filing date of 13 May 1999, has been treated as a request for continuing examination under 37 CFR 1.114, since CPA practice has been abolished effective 14 July 2003.

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 04 February 2004 has been entered. Applicant's amendments filed 20 March 2003 have been entered, as requested in the submission of 04 February 2004.

Applicant's submission of a corrected Sequence Listing in both computer readable format and paper format of 20 March 2003 is acknowledged.

Applicant's amendments of 20 March 2003 have obviated the indefiniteness rejection of record, and the written description rejection of claims 14-16. Upon reconsideration of Applicant's arguments of 20 March 2003, particularly in view of these amendments, the rejection of the claims under 35 USC 103 is also withdrawn.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

The application should be reviewed for errors. Errors appear, for example, in claim 13, part (d), line 1, where ---an--- should be inserted before "RNA".

Claims 9, 11-12, 14 and 16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 9 and 11 and dependents are indefinite in their recitation of "nucleic acid encoding a polypeptide coding region comprising a prokaryotic ammonium-specific asparagine synthetase, type A, coding region" in lines 1-3 of part (a) of each claim. A nucleic acid cannot encode a coding region, since a coding region is also a nucleic acid, while a nucleic acid only encodes a protein. Furthermore, a polypeptide cannot comprise a coding region. Amendment of claims 9 and 11, part (a), to delete "coding region" after "polypeptide" in line 1, and to delete "coding region" after ", type A," in line 2, would obviate this rejection. See amended claim 13.

Claim 12 is indefinite as it is unclear whether all of the cited plant parts comprise the transformed plant cell, or whether only the propagule comprises the plant cell. Amendment of the claim to insert ---each--- after "propagule" would obviate this rejection.

Claim 14 is indefinite in its recitation of "the...polypeptide coding region" in line 2, which lacks antecedent basis in amended claim 13. Amendment of claim 14 to delete "coding region" in line 2 would obviate this rejection.

Claims 9 and 11-16 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for claims limited to plant transformation with a first construct comprising an E. coli ammonium-specific asparagine synthase type A gene ligated to a chloroplast transport-encoding sequence and a second construct

comprising an entire chloroplastic glutamine synthetase coding sequence in antisense orientation with respect to an operably linked regulatory sequence, does not reasonably provide enablement for claims broadly drawn to any other asparagine synthetase gene from any other source, or for "portions" of chloroplastic glutamine synthetase coding sequences in antisense orientation. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention commensurate in scope with these claims.

The claims are broadly drawn to plant transformation with a first construct comprising any prokaryotic coding sequence encoding an ammonium-specific type A asparagine synthetase, operably linked to a chloroplast targeting sequence; and with a second construct comprising any portion of any length or sequence of a chloroplastic glutamine synthetase coding sequence; for the production of plants with increased growth. In contrast, the specification only demonstrates the use of an *E. coli* gene encoding an ammonium-specific type A asparagine synthetase and an antisense construct comprising an entire coding sequence of a chloroplastic glutamine synthetase gene.

The unpredictability inherent in the expression of non-exemplified ammonium-specific asparagine synthetase genes in plants has been discussed previously. See also WO 95/09911 (NEW YORK UNIVERSITY), pages 78-79, which teaches that plant transformation with a gene encoding an ammonium-dependent asparagine synthetase resulted in the inhibition of plant growth.

The unpredictability inherent in the expression of "portions of" glutamine synthetase genes for gene inhibition is also demonstrated by NEW YORK UNIVERSITY, which teaches that cosuppression constructs comprising the intron were more effective in inhibiting gene expression than constructs comprising only intron-less "portions" of the glutamine synthetase gene (see, e.g., pages 45-47).

Given the claim breadth, unpredictability, and lack of guidance as discussed above, undue experimentation would have been required by one skilled in the art to evaluate a multitude of non-exemplified prokaryotic genes encoding ammonium-sensitive type A asparagine synthetases, and antisense constructs comprising a multitude of non-exemplified "portions" of any length and sequence of chloroplastic glutamine synthetase genes, for the obtention of transformed plants with improved growth characteristics.

Applicant's arguments filed 20 March 2003 have been fully considered but they are not persuasive. Applicant urges that other prokaryotic genes encoding ammonium-sensitive type A asparagine synthetases can be isolated.

The Examiner acknowledges that Dudits et al (US 5,723,762) claims plants transformed with any prokaryotic gene encoding ammonium-sensitive type A asparagine synthetases. However, the function of various ammonium-sensitive type A asparagine synthetases in transformed plants for the purpose of enhancing growth, particularly in combination with chloroplast leader sequences and antisense glutamine synthetase constructs, is unpredictable, as stated above.

No claim is allowed.

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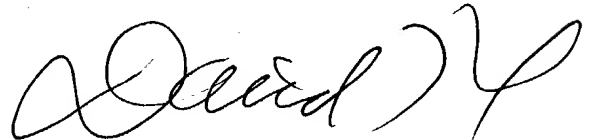
Any inquiry concerning this communication or earlier communications from the examiner should be directed to David T. Fox whose telephone number is (571) 272-0795. The examiner can normally be reached on Monday through Friday from 10:30AM to 7:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amy Nelson, can be reached on (571) 272-0804. The fax phone number for this Group is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (571) 272-1600.

May 30, 2004

DAVID T. FOX  
PRIMARY EXAMINER  
GROUP 180-1638

A handwritten signature in cursive script, appearing to read "David T. Fox", written in black ink.